Dimmer – User manual

Ordering codes:

- **ZMNHDA2** | Frequency range: 868,4 MHz | CEPT (EU, …), China, Singapure, South Africa, UAE
- **ZMNHDA3** | Frequency range: 921,4 MHz | Australia, Brazil, New Zaeland
- **ZMNHDA4** | Frequency range: 908,4 MHz | Chile, Mexico, USA/Canada
- **ZMNHDA5** | Frequency range: 869,0 Mhz | Russia
- **ZMNHDA6** | Frequency range: 916,0 Mhz | Israel

This Z-Wave module is used for dimming the bulb or to manage the speed of a fan. The module can be controlled either through a Z-Wave network or through the wall switch.

The module is designed to be mounted inside a “flush mounting box”, hidden behind a traditional wall switch.

Module measures power consumption of bulb or fan and supports connection of digital temperature sensor. It is designed to act as repeater in order to improve range and stability of Z-wave network.

Supported switches

Module supports mono-stable and bi-stable switches (input I1).

Installation

• Before the installation disconnect power supply.

• Connect the module according to electrical diagram.

• Locate the antenna far from metal elements (as far as possible).

• Do not shorten the antenna.

Danger of electrocution!

• Module installation requires a great degree of skill and may be performed only by a qualified and licensed electrician.

• Even when the module is turned off, voltage may be present on its terminals. Any works on configuration changes related to connection mode or load must be always performed by disconnected power supply (disable the fuse).

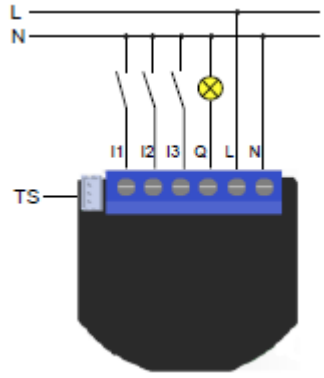
Note!

Do not connect the module to loads exceeding recommended values. Connect the module only in accordance to the below diagrams. Improper connections may be dangerous.

Package contents:

• Flush dimmer

Electrical diagram 230VAC



Notes for the diagram:

N…Neutral lead

L…Live lead

Q…Output for electrical device

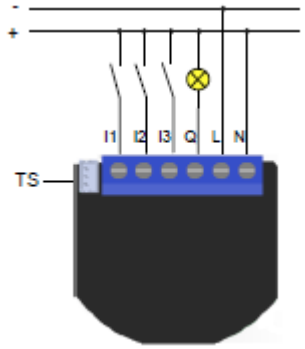
I3…Input for switch/push button or sensor

I2…Input for switch/push button or sensor

I1…Input for push button/switch

TS…Terminal for digital temperature sensor (only for Flush dimmer module compatible digital temperature sensor, which must be ordered separately).

Electrical diagram 24VDC



Notes for the diagram:

N… + 24VDC

L…- 24VDC

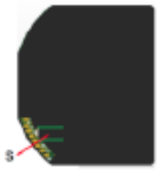
Q…Output for electrical device

I3…Input for switch/push button or sensor

I2…Input for switch/push button or sensor

I1…Input for push button/switch

TS…Terminal for digital temperature sensor (only for Flush dimmer module compatible digital temperature sensor, which must be ordered separately).



S…Service button (used to add or remove module from the Z-Wave network).

Module Inclusion (Adding to Z-Wave network)

• Connect module to power supply (with temperature sensor connected – if purchased),
• bring module within maximum 1 meter (3 feet) of the main controller,
• enable add/remove mode on main controller,
• auto-inclusion (30 minutes after connected to power supply) or
• press service button S for more than 2 seconds or
• press push button I1 three times within 3s (3 times change switch state within 3 seconds).

Module Exclusion/Reset (Removing from Z-Wave network)

• Connect module to power supply,
• bring module within maximum 1 meter (3 feet) of the main controller,
• enable add/remove mode on main controller,
• press service button S for more than 6 seconds or
• press push button I1 five times within 3s (5 times change switch state within 3 seconds) – in the first 60 seconds after the module is connected to the power supply.

By this function all parameters of the module are set to default values and own ID is deleted.
If service button S is pressed more than 2 and less than 6 second module is excluded, but configuration parameters are not set to default values.

Association

Association enables Flush dimmer module to transfer commands inside Z-Wave network directly (without main controller) to other Z-Wave modules.

Associated Groups:

Group 1: multilevel (triggered at changes of state/value of the Flush dimmer) up to 16 nodes
Group 2: basic on/off (triggered at change of the input I2 state and reflecting its state) up to 16 nodes
Group 3: basic on/off (triggered at change of the input I3 state and reflecting its state) up to 16 nodes
Group 4: default reporting group (reserved for the main controller)

Configuration parameters

Parameter no. 1 – Input 1 switch type
Available configuration parameters (data type is 1 Byte DEC):
• default value 0
• 0 mono-stable switch type (push button)
• 1 bi-stable switch type

Parameter no. 2 – Input 2 contact type
Available configuration parameters (data type is 1 Byte DEC):
• default value 0
• 0 NO (normally open) input type
• 1 NC (normally close) input type

Parameter no. 3 – Input 3 contact type
Available configuration parameters (data type is 1 Byte DEC):
• default value 0
• 0 NO (normally open) input type
• 1 NC (normally close) input type

Parameter no. 10 – Activate / deactivate functions ALL ON / ALL OFF
Available configuration parameters (data type is 1 Byte DEC):
• default value 255
• 255 – ALL ON active, ALL OFF active.
• 0 – ALL ON is not active, ALL OFF is not active
• 1 – ALL ON is not active, ALL OFF active
• 2 – ALL ON active, ALL OFF is not active
Dimmer module responds to commands ALL ON / ALL OFF that may be sent by the main controller or by other controller belonging to the system.

Parameter no. 30 – Saving the state of the device after a power failure
Available configuration parameters (data type is 1 Byte DEC):
• default value 0
• 0 – Flush dimmer module saves its state before power failure (it returns to the last position saved before a power failure)
• 1 – Flush dimmer module does not save the state after a power failure, it returns to “off” position.

Parameter no. 40 – Power reporting in Watts on power change
Set value means percentage, set value from 0 – 100=0% – 100%. Available configuration parameters (data type is 1 Byte DEC):
• default value 5
• 0 – Reporting Disabled
• 1 – 100 = 1% – 100% Reporting enabled. Power report is send (push) only when actual power in Watts in real time changes for more than set percentage comparing to previous actual power in Watts, step is 1%.
NOTE: if power changed is less than 1W, the report is not send (pushed), independent of percentage set.

Parameter no. 42 – Power reporting in Watts by time interval
Set value means time interval (0 – 65535) in seconds, when power report is send. Available configure parameters (data type is 2 Byte DEC):
• default value 300 (power report in Watts is send each 300s)
• 0 – Reporting Disabled
• 1 – 65535 = 1 second – 65535 seconds. Reporting enabled. Power report is send with time interval set by entered value.

Parameter no. 60 – Minimum dimming value
Available configuration parameters (data type is 1 Byte DEC):
• Default value 1 (Minimum dimming value is 1%)
• 1- 98 = 1% – 98%, step is 1%. Minimum dimming values is set by entered value.
NOTE: The maximum level may not be lower than the minimum level! 1% min. dimming value is defined by Z-Wave multilevel device class.

Parameter no. 61 – Maximum dimming value
Available configuration parameters (data type is 1 Byte DEC):
• Default value 99 (Maximum dimming value is 99 %)
• 2- 99 = 2% – 99%, step is 1%. Maximum dimming values is set by entered value.
NOTE: The maximum level may not be lower than the minimum level! 99% max. dimming value is defined by Z-Wave multilevel device class.

Parameter no. 65 – Dimming time (soft on/off)

Set value means time of moving the Dimmer between min. and max. dimming values by short press of push button I1 or controlled through UI. Available configuration parameters (data type is 1 Byte DEC):

• Default value 100 (Dimming time between min. and max. dimming values is 1s)

• 1- 255 = 10mseconds – 2550mseconds (2,55s), step is 10mseconds

Parameter no. 66 – Dimming time when key pressed

Time of moving the Dimmer between min. and max dimming values by continues hold of push button I1.

Available configuration parameters (data type is 1 Byte DEC):

• Default value 3 (Dimming time between min. and max. dimming values is 3s)

• 1 – 255 = 10 mseconds – 2550 mseconds (2,55s), step is 10 mseconds

Technical specifications:

Power supply: 110 – 230 VAC ±10% 50/60Hz, 24-30VDC

Rated load current of AC output: 0,85A / 230VAC

Rated load current of DC output: 0,85A / 30VDC

Output circuit power of AC output (resistive load)*: 200W (230VAC)

Output circuit power of DC output (resistive load): 21W (24VDC)

Power measurement accuracy: +/-2W

Digital temperature sensor range (sensor must be ordered separately): -50 ~ +125°C

Operation temperature: -10 ~ +40°C

Distance: up to 30 m indoors (depending on building materials)

Dimensions (W x H x D): 41,8 x 36,8 x 15,4mm

Weight: 28g

Electricity consumption: 0,7W

For installation in boxes: Ø ≥ 60mm or 2M

Switching: MOSFET (Trailing edge)

*max 100W mono-phase asynchronous fan motor can be connected to dimmer output

Description of switch function:

Switch toggles (parameter 1 set to 1) the state of the light bulb between the last dimming value and 0. If last dimming value is 0 then the light is turned 100% when switch changes its state.

Bulb types which support dimming function:

• The classical incandescent bulbs.

• Halogen bulbs operated by 230 V AC (High Voltage Halogen).

• Low voltage halogen bulbs with electronic or conventional transformer.
• Dimmable compact fluorescent bulb (CFL). If the bulb at low intensities flushes it is recommended to set parameter 60 (minimum dimmable value) to 30 or more.
• Dimmable LED bulbs.

Z-Wave Device Class:
BASIC_TYPE_ROUTING_SLAVE
GENERIC_TYPE_SWITCH_MULTILEVEL
SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL
Z-Wave Supported Command Classes:
COMMAND_CLASS_BASIC
COMMAND_CLASS_SWITCH_MULTILEVEL_V3
COMMAND_CLASS_SWITCH_ALL
COMMAND_CLASS_SWITCH_BINARY
COMMAND_CLASS_METER_V3
COMMAND_CLASS_SENSOR_MULTILEVEL_V3
COMMAND_CLASS_MULTI_CHANNEL_V3
COMMAND_CLASS_POWERLEVEL
COMMAND_CLASS_ASSOCIATION
COMMAND_CLASS_CONFIGURATION
COMMAND_CLASS_MANUFACTURER_SPECIFIC
COMMAND_CLASS_VERSION
COMMAND_CLASS_MARK
COMMAND_CLASS_BASIC
COMMAND_CLASS_SWITCH_MULTILEVEL_V3
Endpoint 1 (I2):
Device Class:
GENERIC_TYPE_SENSOR_BINARY
SPECIFIC_TYPE_NOT_USED
Command Classes:
COMMAND_CLASS_SENSOR_BINARY
COMMAND_CLASS_BASIC
Endpoint 2 (I3):
Device Class:
GENERIC_TYPE_SENSOR_BINARY
SPECIFIC_TYPE_NOT_USED

Command Classes:
COMMAND_CLASS_SENSOR_BINARY
COMMAND_CLASS_BASIC
This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from any other manufacturers. All constantly powered nodes in the same network will act as repeaters regardless of the vendor in order to increase reliability of the network.

Important disclaimer

Z-Wave wireless communication is inherently not always 100% reliable, and as such, this product should not be used in situations in which life and/or valuables are solely dependent on its function.

Warning!

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

This user manual is subject to change and improvement without notice.

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